

Remarks

Claims 1-8 and 10-18 are all the claims pending in the application.

Reconsideration and review on the merits are respectfully requested.

Preliminary Items

Applicants appreciate that the Examiner has entered the previous amendments to Claims 1-8 and 10-18.

Applicants appreciate that the Examiner has returned an initialed and signed copy of the Form PTO-1449 submitted to the Patent Office on June 4, 2001.

Applicants further appreciate that the Examiner has withdrawn the rejections over the prior art references of Ogawa (JP 11-80690) and Creegan et al. (U.S. 3,914,484).

Claim Rejections - 35 USC § 102/103

The Examiner maintains the same rejection of Claims 1-8 and 10-17 under 35 U.S.C. §102(e) as allegedly being anticipated by Sashihara et al. (US 6,251,517 B1) for the reasons given in the Office Action.

Likewise, the Examiner maintains the same rejection of Claim 18 under 35 U.S.C. §103(a) as allegedly being unpatentable over Sashihara et al. in view of Applicants' alleged admission at page 1 for the reasons given in the Office Action.

The Examiner maintains that Sashihara et al. discloses a pressure sensitive adhesive (PSA) composition in which the chemical composition and structure of the rubber disclosed by

Sashihara et al. and that of the claimed invention are identical. The Examiner further maintains that all limitations of the claimed invention are either inherent or disclosed by Sashihara.

The Examiner states that Applicants' arguments filed on September 24, 2002, have been fully considered, but they are not persuasive. Applicants previously traversed the rejection of Claims 1-8 and 10-17 under 35 U.S.C. 102(e) by arguing that the claimed invention is not anticipated by Sashihara et al. and that Sashihara does not disclose or suggest solvent-free production, as evidenced in Sashihara by the use of toluene as the solvent in the examples. However, the Examiner disagreed with Applicants' arguments. The Examiner's position is that a solvent, i.e., toluene in Sashihara, is added only after the reaction has taken place. Hence, the Examiner maintains the rejection in the Final Office Action.

Applicants traverse the rejections as follows.

One invention presently claimed is a method for producing a solvent-free, non-aqueous and solid type pressure-sensitive adhesive composition. This method does not substantially use an organic solvent or water. Another invention presently claimed is a method for producing pressure-sensitive adhesive sheets, comprising calendering or extrusion coating the solid type pressure-sensitive adhesive composition on a substrate.

The methods according to the invention do not use a solvent, such as toluene, for forming a coating liquid, although the Examiner appears to consider the possibility of adding such a solvent. In fact, the pressure-sensitive adhesive composition according to the present invention is solvent-free, and the subsequent step is conducted in the absence of a solvent. Thus, in production methods according to the present invention, any solvent is not substantially used.

Although Applicants submit that the claims clearly set forth this invention, further amendment has been made for any needed clarification.

Applicants kindly submit that the Examiner appears to interpret the claimed invention beyond the scope that Applicants intend to claim. Applicants emphasize that the claimed scope of the invention does not provide for the use of a solvent such as toluene. That is, independent Claim 1 does not include the possibility of adding a solvent such as toluene after the reaction has taken place in order to create a coating liquid.

In view of the above nature of the presently claimed invention, the claimed invention differs from Sashihara in that Example 1 of Sashihara does not use an isocyanate crosslinking agent, and uses a solvent in a coating step to form a pressure-sensitive adhesive solution (coating liquid). The Examiner's reliance on the use of toluene after the reaction has taken place in Example 1 of Sashihara is improper because Example 1 does not disclose the Applicants' invention using an isocyanate crosslinking agent, in the absence of a solvent, to crosslink the polymer. Example 1 does not disclose using any isocyanate. Therefore, Example 1 of Sashihara does not meet all such limitations of Applicants' Claim 1.

Furthermore, Sashihara's Example 2 clearly supports Applicants' arguments. In Example 2, bridging columns 8-9, a PSA Composition was formed using isocyanate hardening agent as one component. Applicants believe that the isocyanate hardening agent also functions as a crosslinking agent as the crosslinking function was previously disclosed in Sashihara at column 7, line 19. However, the use of the isocyanate hardening/crosslinking agent in Example 2 is coupled with ethyl acetate, a liquid, ester solvent, to prepare a coating liquid. Example 2 further

discloses the use of the solvent toluene as being a significant component of the PSA composition. From these disclosures in Example 2, Sashihara does not anticipate the critical limitation that the solid type PSA composition is inherently solvent-free and non-aqueous. In addition, in Example 2 of Sashihara, a rubber-based polymer and a tackifier are not used, and toluene is used. These process limitations differentiate Sashihara from the present invention. Finally, Example 2 of Sashihara shows that “In accordance with solution polymerization method, the pressure-sensitive adhesive components were polymerized.” (col. 9, lines 16-17). That is, Sashihara obtains a pressure-sensitive adhesive composition by solution polymerization. It is therefore considered that toluene is used when polymerizing pressure-sensitive adhesive components and thereafter.

Applicants kindly reemphasize arguments presented in the previous Amendment by incorporation herein along with the following. As the present specification makes clear, the “solid type” pressure-sensitive adhesive (PSA) composition is a solvent-free, non-aqueous composition. Applicants have emphasized the feature, by reciting in independent Claims 1 and 18 and dependent Claims 2-8 that the final product of the method claim is a solid, solvent-free, non-aqueous PSA composition. The claimed steps of adding a tackifier to the rubbery polymer, then treating the resulting mixture with an isocyanate crosslinking agent, in the absence of a solvent, to crosslink the polymer to create a solid, solvent-free, non-aqueous PSA composition which results from the claimed method, are not disclosed or suggested by Sashihara.

In contrast to Sashihara, Applicants’ solvent-free and non-aqueous, solid type PSA composition has an enhanced cohesive power while retaining adhesive strength, and hence has

better holding power and other advantages. For example, as described in the paragraph bridging pages 10-11 of the specification, Applicants' solid type PSA composition obtained by the method of the present invention, has satisfactory formability because it readily softens upon heating. By applying this composition on a substrate, e.g., a cloth, paper, or plastic film with a calendar roll coater, extruder or the like while heating the composition, a PSA in the form of a sheet, tape, etc. can be produced which comprises the substrate having formed thereon a layer of the PSA composition. Because this process uses neither water nor an organic solvent, there is no necessity or need for drying and its concomitant energy requirements. Consequently, there is no need for conducting a step of drying with a drying oven after substrate coating. The process is friendly to the environment and greatly contributes to energy saving.

Applicants submit that Sashihara does not disclose or suggest the claimed process. Accordingly, Applicants respectfully request withdrawal of Sashihara as a reference and request allowance of all pending claims.

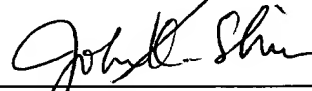
Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

AMENDMENT UNDER 37 C.F.R. § 1.116
U.S. Appln. No. 09/742,363

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



John K. Shin
Registration No. 48,409

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE



23373

PATENT TRADEMARK OFFICE

Date: June 4, 2003



AMENDMENT UNDER 37 C.F.R. § 1.116
U.S. Appln. No. 09/742,363

APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

The claims are amended as follows:

1. (Twice Amended) A method for producing a solid type pressure-sensitive adhesive composition comprising adding, in the absence of a solvent, a tackifier to a rubbery polymer and treating the resulting mixture with an isocyanate crosslinking agent, in the absence of a solvent, to crosslink the polymer, and thereby produce said solid pressure-sensitive adhesive composition.

18. (Twice Amended) A method of producing pressure-sensitive adhesive sheets comprising calendering or extrusion coating, in the absence of a solvent, a solid type pressure-sensitive adhesive composition obtained by a method comprising adding, in the absence of a solvent, a tackifier to a rubbery polymer and treating the resulting mixture with an isocyanate crosslinking agent, in the absence of a solvent, to crosslink the polymer, on a substrate.